WHAT IS CLAIMED IS:

1. A perpendicular magnetic recording medium comprising:

a nonmagnetic substrate;

a first perpendicular magnetic recording layer formed on the nonmagnetic substrate, having an easy axis of magnetization in a vertical direction, and containing cobalt in a larger amount; and

a second perpendicular magnetic recording layer formed on the first perpendicular magnetic recording layer, having an easy axis of magnetization in the vertical direction, and mainly containing a crystalline alloy, and the crystalline alloy contains a rare earth element and a transition metal.

2. A medium according to claim 1, which further comprises a soft magnetic backing layer between the nonmagnetic substrate and first perpendicular magnetic recording layer.

3. A medium according to claim 1, which further comprises, on the second perpendicular magnetic recording layer, one of a lubricating layer, and a lubricating layer formed on the protective layer.

4. A medium according to claim 1, wherein the transition metal contains cobalt and chromium.

5. A medium according to claim 4, wherein the transition metal further contains platinum.

6. A medium according to claim 1, wherein the

second perpendicular magnetic recording layer has a thickness of 0.1 (inclusive) to 20 (exclusive) nm.

7. A medium according to claim 6, wherein the second perpendicular magnetic recording layer has a thickness of 0.1 (inclusive) to 15 (inclusive) nm.

8. A medium according to claim 1, wherein the first perpendicular magnetic recording layer contains at least one of platinum and chromium.

9. A medium according to claim 8, wherein the first perpendicular magnetic recording layer further contains oxygen.

10. A medium according to claim 1, wherein the rare earth element is at least one element selected from the group consisting of yttrium, lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, thulium, ytterbium, and lutetium.

11. A medium according to claim 1, wherein the rare earth element is contained in an amount of 0.1 to 20 at% in the second perpendicular magnetic recording layer.

12. A medium according to claim 11, wherein the rare earth element is at least one element selected from the group consisting of yttrium, lanthanum, cerium, samarium, europium, thulium, ytterbium, and lutetium.

13. A medium according to claim 10, wherein the

rare earth element is at least one element selected from the group consisting of praseodymium, neodymium, gadolinium, terbium, dysprosium, and holmium, and contained in an amount of 0.1 to 10 at% in the second perpendicular magnetic recording layer.

14. A medium according to claim 1, wherein the second perpendicular magnetic recording layer contains at least one of tantalum and niobium.

15. A medium according to claim 1, which further comprises at least one magnetic layer between the first and second perpendicular magnetic recording layers, and/or on the second perpendicular magnetic recording layer.

16. A medium according to claim 15, which further comprises other first and second perpendicular magnetic recording layers stacked on the second perpendicular magnetic recording layer.

17. A medium according to claim 1, which further comprises at least one nonmagnetic undercoating between the nonmagnetic substrate and first perpendicular magnetic recording layer.

18. A magnetic recording/reproduction apparatus comprising a perpendicular magnetic recording medium defined in any one of claims 1 to 17, a mechanism which supports and rotates the perpendicular magnetic recording medium, a magnetic head having an element to record information on the perpendicular magnetic

recording medium and an element to reproduce recorded information, and a carriage assembly which supports the magnetic head to be movable with respect to the perpendicular magnetic recording medium.